TRR181 Cruise
Poseidon 533/2
25. March - 1. April 2019

1. Weekly report

The Poseidon cruise POS533/2 is part of the TRR 181, an interdisciplinary research program of the Deutsche Forschungs-gemeinschaft (DFG). The topic of TRR181 'Energy transfers in atmosphere and ocean' is the representation of the oceanic and atmospheric energy cycles in climate models. POS533-2 is the third expedition to the area south of the Azores within the TRR181 after last years' POS523 and POS516 in 2017.

Leaving the port of Las Palmas, Gran Canaria

Tidal forcing excites so-called internal tides at steep topography such as seamounts and the continental shelf. These internal tides have the form of underwater waves that may travel hundreds of kilometers across ocean basins. Along their paths, the waves lose their energy by a range of processes and interactions, but the how and where is mostly unknown.

Our project has the aim of better understanding the fluxes and dissipation of this tidal energy in the ocean interior to improve the representation of these processes in climate models.

Instruments in the lab after the mooring recovery

South of the Azores seamounts generate very energetic internal tides that form a so-called internal tide beam which radiates energy southwards towards the Cap Verde Islands. During POS516 and POS523 we conducted a spacial survey to better understand the fluxes and dissipation of the internal tides. A mooring measuring time series of temperature and current velocities was redeployed during POS523 in May 2018. Its data will be used to study the temporal variability in the energy of the internal tides. The retrieval of this mooring is the main goal of this cruise.

We left the port of Las Palmas with a delay of 27h because we had to wait for the customs clearance of a container from the previous cruise. At noon of the 25th we started our 4-day trip to the mooring position which gave us enough time to prepare everything for the mooring recovery. On our way to the mooring,

we carried out a 2000m Conductivity/Temperature/Depth- (CTD) Profile to take water samples that will be used for the calibration of salinity measurements.

On the morning of Friday 29th March, we reached the mooring position and successfully recovered our mooring. Thanks to the great work of the captain and crew of the Poseidon, all our instruments could be retrieved in good condition, having been in the ocean for ten months since May last year.

Right after the mooring recovery and a shallow CTD cast for sensor calibration, we set course towards Ponta Delgada (Azores) where we will, despite the best effort of Captain Günther and his crew, only arrive on Monday 1st of April, one day later than originally planned due to the late start in Las Palmas and unfavorable wind and wave conditions.

Best wishes to all friends, families and colleagues on shore!

Janna Köhler and the scientific party of POS533/2

Scientific crew during POS533/2